|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |  |  |  |

 **REG NO:**

 **Department of Mechanical Engineering**

**SIR ISSAC NEWTON COLLEGE OF ENGINEERING AND TECHNOLOGY**
 Mechanical Engineering
**ME6601 — DESIGN OF TRANSMISSION SYSTEMS**
Time: Two hours **Year/Sem: III / VI** Maximum: 50 Marks

CIA –I EXAM

Date: 03/02/2019

PART-A

(**5× 2 = 10 Marks)**

1. Define module.
2. Under what situation, bevel gears are used?
3. In worm gear drive, only the wheel is designed .Why?
4. Usually worm is made of hard material and worm gear is made of softer materials--Justify.
5. What is a herringbone gear? Where is it used?

PART-B

 (**4× 10 = 40 Marks)**

(6)Design a spur gear drive for a heavy machine tool with moderate shocks. The pinion is transmitting 18 KW at 1200 rpm with a gear ratio of 3.5.Design the drive and check for elastic stresses and plastic deformation. Make a sketch a lable important dimension arrived.

(7) Design a bevel gear drive to transmit 7.5 KW at 1500 rpm. Gear ratio is 3.5. Material for pinion and gear is C45 steel. Minimum number of teeth is to be 25.

(8)Design a worm gear drive and determine the power loss by heat generation. The hardened steel worm rotates at 1500 rpm and transmits 10 KW to a phosphor bronze gear with gear ratio of 16.

(9)Design a pair of helical gears to transmit 18.75 kW at 600 rpm of the pinion. The velocity ratio should be about 3 and the pinion should have about 20 teeth which are full depth 20o involutes. Find the module, face width, diameter of the gears both gears.

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*